Ownership matrix

## 1.0 PURPOSE AND SCOPE

This standard establishes requirements to ensure safe walking and working surfaces to prevent injuries from slips, trips, and falls.

This document applies to all CH2M HILL and subcontractor employees.

## 2.0 IMPLEMENTATION

This standard is effective on the date shown in the header. Section 3.2, item 4, has a separate implementation date.

## 3.0 STANDARD

(5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.1.6)

### 3.1 General Requirements

Managers and Supervisors:

1. Ensure all walking/working surfaces are maintained free of tripping hazards and other hazards that could result in slips, trips or falls.

2. Ensure all walking/working surfaces in construction work places are maintained free of hazards that could result in injury and that guardrail systems or other fall protection systems are provided.

3. Ensure that wall openings from which there is a drop of more than four feet are guarded by a rail, or equivalent barrier, and that every open-sided floor or platform four feet or more above ground level is guarded by a guardrail system. A guardrail sytem consists of a top rail at 42 inches, a midrail, and toeboard. Floor openings or ladder ways shall be guarded by a railing, cover, or appropriate barrier.

4. Ensure aisles and passageways are appropriately marked and kept clear and in good repair with no obstructions across or in aisles that could create a hazard.

5. Ensure fixed industrial stairs are provided where an operation necessitates regular travel between levels and to prevent employee exposure to harmful substances or hazardous conditions such as carrying tools or equipment by hand. A stairway or ladder must be provided at all worker points of access where there is a break in elevation of 19 inches (48 cm) or more **and** no ramp, runway, embankment, or personnel hoist is provided.

6. Stairways must be installed at least 30 degrees, and no more than 50 degrees, from the horizontal.

7. Ensure that walking/working surfaces on which employees are to work have the strength and structural integrity to safely support the employees, intended work activities, and

equipment or storage anticipated for the area and no load greater than that approved by the building official is placed on any floor or roof of a building or other structure.

8. Provide hand rails for stairs with four or more risers or those over 30 inches high.

9. The height of ~~the top edge of a stairrail system used as~~ a handrail are not more than 34~~7~~ inches (94 cm) nor less than 30~~6~~ inches (91.5 cm) from the upper surface of the handrail ~~stairrail system~~ to the surface of the tread.

10. Stairrail systems and handrails are surfaced to prevent injuries such as punctures or lacerations and to keep clothing from snagging.

11. Handrails provide an adequate handhold for employees to grasp to prevent falls.

12. The ends of stairrail systems and handrails must be constructed to prevent dangerous projections such as rails protruding beyond the end posts of the system.

13. Temporary handrails must have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stairrails systems, and other objects.

14. Unprotected sides and edges of stairway landings are provided with standard 42-inch (1.1 m) guardrail systems. Stairway platforms shall be no less than the width of a stairway and a minimum of 30 inches in length measured in the direction of travel.

15. Ensure that guardrail systems for walking/working surfaces in permanent structures are provided when the difference in elevation is four feet or greater. Ensure temporary floor openings or ladder ways are covered or protected wit guardrail systems.

16. Ensure stairs or ramps are provided for elevated areas used on a routine basis.

17. Ensure that stair treads are slip resistant and their leading edges, or nosings, are visible, and that the nosing has a non-skid finish.

18. NOTE: It is often difficult to see stair edges where treads and landings are similar in color pattern.

19. Provide lighting commensurate with the activity in the area with a minimum general lighting of 5 fc.

20. Remind employees that they have the responsibility to be alert for ice and snow hazards in and around their work areas.

21. Ensure an ice-melt is applied to outside walking and work areas.

22. In accordance with TFC-PLN-45, ensure ice and snow hazards do not prevent safe access to and from work areas (designated walkways, possible snow removal).

23. Ensure that ice and snow are removed from facility emergency response staging areas and accesses to designated staging areas.

All personnel shall comply with the following requirements:

1. Keep work surfaces orderly, free of tripping hazards, and free of other hazards that could result in injury.

2. Ensure safe access is provided to the work area and a safe means of egress from the work area to a place of safety is available prior to performing work activities.

3. Arrange materials in a stable manner so that they do not protrude into the walkway.

4. If materials are stored above work surfaces, place them back from edges or behind protective barriers to protect those working below.

5. Keep interior walkways dry.

   a. Clean up spills or mark the area with safety barricades until the spill can be cleaned up.

   b. Walkways where water is constantly present should have a raised surface or grating, as necessary, to provide a non-skid surface.

## 3.2 Floor and Roof Strength

Management/Building Administrator:

1. Post floor loading limits where the floor loading is not controlled, such as in storage areas on mezzanines.

   - Post the area design load limit in areas where the load amount and location is changing, such as in storage areas on elevated floors or above basements.

   NOTE: Grade or slab construction does not require posting floor loading limits.

2. Ensure that an evaluation is performed when additional loading is being considered or when there is a change to ~~a storage~~storage occupancy. This should be performed by a structural engineer.

   NOTE: Fireproof or security type cabinets and floor to ceiling retrieval systems may exceed the concentrated load limit in an office.

3. Ensure that when a roof becomes a walking/working surface the roof is strong enough to support the intended work activities and equipment use anticipated for the project. ~~Historical roof inspection reports exist~~ A listing of roof inspection reports is maintained by Building Services. ~~, however no further~~ Routine ~~roof~~ roof engineering inspections are not required for occupied and maintained facilities.

4. Ensure that non-occupied non-maintained facilities ~~having~~ have roofs serving as a walking or working surface pass an engineering inspection using a Good Faith Roof Assessment (form A-6004-413). New facilities engineering inspection reports will be sent to Building Services

NOTE: After the roof inspection is completed, the RPP documents should be revised to include the new inspection. The list of RPP documents can be obtained from ~~Facilities Management~~Building Services. The inspection report shall be released against the appropriate RPP document in accordance with TFC-ENG-DESIGN-C-25.

5. An engineering inspection, as requested by ~~Facility Management~~Building Services, should be performed any time a walking/working surface, or any other portion of a facility, is suspect or could possibly be structurally unsafe.

6. Employees Assigned to Perform Work on a Roof - The work team will perform a pre-job walk-down of a roof to evaluate its safety as a walking or working surface. Safety, engineering, and facility management/delegate will support this walkdown, as needed. The purpose of the walkdown of the roof is to determine if the condition varies significantly (a hazard may exist) with that indicated in the most recent record inspection. If the condition is found to significantly vary from the most recent inspection, work will be terminated and the roof barricaded until an inspection can be performed.

## 4.0 RECORDS

~~The following records are generated during the performance of this standard:~~

- ~~Good Faith Roof Assessment forms.~~

~~Central e~~Engineering is responsible for record retention and retirement of the Good Faith Roof Assessment form in accordance with TFC-BSM-IRM_DC-C-02. If requested by ~~Facility management~~Building Services, the roof assessment report should be released as a supporting document ~~using the listing in Attachment A as a guide~~in accordance with TFC-ENG-DESIGN-C-25.

## 5.0 SOURCES

### 5.1 Requirements

1. 29 CFR 1910, Subpart D, “Walking-Working Surfaces.” (S/RID)
   a. 1910.22, “General Requirements.”
   b. 1910.23, “Guarding Floor and Wall Openings and Holes.”
   c. 1910.24, “Fixed Industrial Stairs.”

2. 29 CFR 1910, Subpart E, “Means of Egress.” (S/RID)

3. 29 CFR 1926, Subpart M, “Fall Protection.”

4. 29 CFR 1926 Subpart X, “Stairways and Ladders.” (S/RID)

5. NFPA 101, “Life Safety Code.” (S/RID)

6. 10 CFR 851,” Worker Safety and Health Program.”

## 5.2 References

1. TFC-BSM-FPM_PR-C-01, “Property Management.”
2. TFC-BSM-FPM_PR-CD-04, “Building Management.”
3. TFC-ESHQ-S-STD-26, “Fall Protection.”
4. TFC-PLN-45, “Snow Removal Plan.”